

What is claimed is:

- 1 1. An acoustic diaphragm having a dynamic response
2 extending throughout the audible range, comprising a rigid
3 plate-like member supported upon, and pivotal about, a side
4 thereof, said rigid plate-like member having torsional and
5 translational stiffeners.
- 1 2. The acoustic diaphragm in accordance with claim 1,
2 wherein said torsional and translational stiffeners comprise
3 cross members.
- 1 3. The acoustic diaphragm in accordance with claim 1,
2 wherein the side that supports the diaphragm comprises a "T"
3 section whose length and cross-section can be varied to tune
4 said acoustic diaphragm for a resonant frequency.
- 1 4. The acoustic diaphragm in accordance with claim 1,
2 wherein said rigid plate-like member is fabricated of
3 polycrystalline silicon or similar materials.
- 1 5. The acoustic diaphragm in accordance with claim 1,
2 wherein said rigid plate-like member comprises a substantially
3 flat shape.

1 6. The acoustic diaphragm in accordance with claim 1,
2 wherein said rigid plate-like member comprises a substantially
3 box-like shape.

1 7. The acoustic diaphragm in accordance with claim 1,
2 wherein said plate-like member is approximately 2 microns
3 thick.

1 8. The acoustic diaphragm in accordance with claim 1,
2 wherein said torsional and translational stiffeners are
3 approximately 4 microns thick and 40 microns tall.

1 9. The acoustic diaphragm in accordance with claim 1,
2 having a first resonance frequency of approximately 24 kHz.

1 10. The acoustic diaphragm in accordance with claim 1,
2 having a second resonance frequency of approximately 84 kHz.

1 11. An acoustic diaphragm having a dynamic response
2 extending beyond an audible range, comprising a rigid plate-
3 like member supported upon, and pivotal about, a "T" section
4 disposed on a side thereof, said rigid plate-like member
5 having torsional and translational crossbar stiffeners to
6 provide a robust dynamic response extending throughout the
7 audible range.

1 12. The acoustic diaphragm in accordance with claim 11,
2 wherein said rigid plate-like member is fabricated of
3 polycrystalline silicon or similar materials.

1 13. The acoustic diaphragm in accordance with claim 11,
2 wherein said rigid plate-like member comprises a substantially
3 flat shape.

1 14. The acoustic diaphragm in accordance with claim 11,
2 wherein said rigid plate-like member comprises a substantially
3 box-like shape.

1 15. The acoustic diaphragm in accordance with claim 11,
2 wherein said plate-like member is approximately 2 microns
3 thick.

1 16. The acoustic diaphragm in accordance with claim 11,
2 wherein said torsional and translational stiffeners are
3 approximately 4 microns thick and 40 microns tall.

1 17. The acoustic diaphragm in accordance with claim 11,
2 having a first frequency mode of approximately 24 kHz.

1 18. The acoustic diaphragm in accordance with claim 11,
2 having a second frequency mode of approximately 84 kHz.

1 19. An acoustic diaphragm having a dynamic response
2 extending throughout the audible range, comprising a rigid
3 plate-like member cantilevered about one side thereof, said
4 rigid plate-like member having torsional and translational
5 stiffeners to provide a robust dynamic response extending
6 throughout the audible range.

1 20. The acoustic diaphragm in accordance with claim 19,
2 wherein said torsional and translational stiffeners comprise
3 cross members.

1 21. The acoustic diaphragm in accordance with claim 19,
2 wherein the side that is cantilevered comprises a "T" section
3 whose length and cross-section can be varied to tune said
4 acoustic diaphragm for a resonant frequency.

1 22. The acoustic diaphragm in accordance with claim 19,
2 wherein said rigid plate-like member is fabricated of
3 polycrystalline silicon or similar material.

1 23. The acoustic diaphragm in accordance with claim 19,
2 wherein said rigid plate-like member comprises a substantially
3 flat shape.

1 24. The acoustic diaphragm in accordance with claim 19,
2 wherein said rigid plate-like member comprises a substantially
3 box-like shape.

1 25. The acoustic diaphragm in accordance with claim 19,
2 wherein said plate-like member is approximately 2 microns
3 thick.

1 26. The acoustic diaphragm in accordance with claim 19,
2 wherein said torsional and translational stiffeners are
3 approximately 4 microns thick and 40 microns tall.

1 27. The acoustic diaphragm in accordance with claim 19,
2 having a first frequency mode of approximately 24 kHz.

1 28. The acoustic diaphragm in accordance with claim 19,
2 having a second frequency mode of approximately 84 kHz.